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NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

**THE IMPLEMENTATION OF ORGANIZATIONAL DESIGN
PRINCIPLES THROUGHOUT THE SAN MATEO COUNTY
EMERGENCY SERVICES JOINT POWERS AGREEMENT
AND ITS ABILITY TO INCREASE APPLICABILITY,
RELEVANCE, AND EFFECTIVENESS**

by

Edmund L. Barberini

December 2011

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THROUGHOUT THE SAN MATEO COUNTY EMERGENCY SERVICES JOINT
POWERS AGREEMENT AND ITS ABILITY TO INCREASE APPLICABILITY,
RELEVANCE, AND EFFECTIVENESS**

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Submitted in partial fulfillment of the
requirements for the degree of

**MASTER OF ARTS IN SECURITY STUDIES
(HOMELAND SECURITY AND DEFENSE)**

from the

**NAVAL POSTGRADUATE SCHOOL
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ABSTRACT

This thesis examines the application of organizational design principles to, and intergovernmental effort for, the provision of emergency management and homeland security services to a county comprised of twenty individual incorporated cities with a population of over 700,000. A current lack of attention paid to these important factors has led to an emergency management process that does not provide the necessary level of collaboration or the efficient distribution of vital resources. The premise is that the inclusion of special districts in the county's emergency plans and response strategies will promote the optimum level of safety, security, and preparedness. Interoperable communications is presented as an area where an existing Joint Powers Agreement (JPA) can be more comprehensive and effective. The thesis will examine the nature of a series of perceived challenges associated with this joint powers agreement as these factors apply to special districts and interoperable communications. The paper also examines potential solutions to these challenges via the implementation of organizational design principles.

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LIST OF ACRONYMS AND ABBREVIATIONS

BTOP	Broadband Technology Opportunities Program
CalEMA	California Emergency Management Agency
CARICOM	Caribbean Community and Common Market
CDEMA	Caribbean Disaster Emergency Management Agency
CSTI	California Specialized Training Institute
DHS	Department of Homeland Security
EOC	Emergency Operations Center
EOD	Explosive Ordnance Disposal
EOP	Emergency Operations Plan
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
GAO	Government Accountability Office
HAZMAT	Hazardous Materials Response
HSEEP	Homeland Security Exercise and Evaluation Program
IAP	Incident Action Plan
IC	Incident Commander
ICS	Incident Command System
ISD	Information Services Department
JPA	Joint Powers Agreement
kHz	Kilohertz
MHz	Megahertz
MOU	Memorandum of Understanding
NCRIC	Northern California Regional Intelligence Center

NIMS	National Incident Management System
OES	Office of Emergency Services
P25	Project 25 Communications Platform
RAC	Risk Assessment Center
REOC	Regional Emergency Operations Center
SAFECOM	Department of Homeland Security Communication Interoperability and Compatibility Program
SEMS	Standardized Emergency Management System
SFO	San Francisco International Airport
SOC	State Operations Center
TCAT	Terrorist Counterassault Team
TSA	Transportation Security Administration
UASI	Urban Area Security Initiative
UHF	Ultra High Frequency
VHF	Very High Frequency
WMD	Weapons of Mass Destruction

EXECUTIVE SUMMARY

Portions of the current San Mateo County (CA) Emergency Services Joint Powers Agreement, which establishes a unified emergency services organization designated as the San Mateo Sheriff's Area Office of Emergency Services and Homeland Security, are outdated and ineffective. The agreement was developed prior to the events of September 11, 2001 and Hurricanes Katrina and Rita in 2005. The agreement does not adequately define goals or identify measurable and/or attainable results

The growth of special districts within the county, especially with the presence of the San Francisco International Airport in the county, present unique challenges for the county's Emergency Services Council. This council, charged with oversight responsibility of emergency management efforts, has yet to adequately address the evolution of how public safety and additional core services are provided.

The lack of attention paid to these important factors has led to an emergency management process that does not provide the necessary level of collaboration or the efficient distribution of vital resources. Unless these important agencies are included in the county's emergency plans and response strategies, the optimum level of safety, security, and preparedness will not be realized.

This thesis presents the nature of the problems associated with the Joint Powers Agreement as they apply to special districts and interoperable communications. It also examines potential solutions to these challenges via the implementation of organizational design principles. Significant obstacles facing these alternatives are forecasted and listed. Finally, the discussion will address how the potential solutions can address and overcome these potential roadblocks.

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I. INTRODUCTION

A. PROBLEM STATEMENT

Portions of the current San Mateo County Emergency Services Joint Powers Agreement (JPA), which established a unified emergency organization designated as the San Mateo Sheriff's Area Office of Emergency Services and Homeland Security, are outdated and ineffective. The agreement was developed prior to the events of September 11, 2001, and Hurricanes Katrina and Rita in 2005. It does not adequately define goals or identify measurable and/or attainable results (Yballa, 2009). In addition to issues raised by officials from several of the 20 municipalities located within the county, a 2005 investigation conducted by the San Mateo County Civil Grand Jury identified clear areas of concern (San Mateo Civil Grand Jury, 2005). Among the areas of concern identified in the grand jury report are the growth of special districts within the county, the lack of coordination with the San Francisco International Airport located in the county, and the inadequacy of law enforcement radio networks (San Mateo Civil Grand Jury, 2005).

The San Mateo County Emergency Services Council is an intergovernmental entity charged with oversight responsibility of emergency preparedness and management efforts. The council is comprised of elected officials from the county and each of the municipalities. This council has yet to address adequately the evolution of how public safety and additional core services are provided. The challenges associated with the identified problem areas are the results of an ineffective form of governance.

The lack of attention paid to the issue of governance has led to an emergency management process that does not provide for the necessary level of collaboration or the efficient dissemination of vital resources. Unless all relevant parties are included in the county's emergency plans and response strategies, the optimum level of safety, security, and preparedness will not be realized.

The grand jury identified the San Mateo County Office of Emergency Services and Homeland Security (OES) as the spearhead for the county's emergency preparedness efforts (San Mateo Civil Grand Jury, 2005). It noted the county's relationship with the region, state, and nation as a valuable preparedness asset (San Mateo Civil Grand Jury, 2005). This is enhanced by OES' access to grant funding and streamlined state and federal resources. While municipalities pursue their own preparedness efforts, they often lack the resources and robustness to address disasters of significant size.

The San Mateo County Emergency JPA continues to support the preparedness needs of the county; however, the evolution of the manner in which public safety and additional core services are provided has made the JPA less relevant. The shortcomings of the agreement must be recognized by the Emergency Services Council and acted upon. These concerns extend beyond the logistical and practical issues associated with the inclusion of the many special districts within the county and the San Francisco International Airport. The real problem is that the JPA does not provide for the intergovernmental and inter-organizational collaboration necessary to support the county's preparedness and security efforts. A large contributor to this problem is the lack of participation and defined role of non- or quasi-governmental organizations essential to success in this area. A move to include these entities and to explore alternate intergovernmental principles will face political challenges and financial obstacles. Even so, the ultimate goal is to enhance the safety and security of the county's residents.

B. RESEARCH QUESTION

The premise of this study is based on the belief articulated earlier in the chapter—specifically that portions of the current San Mateo County Emergency Services Joint Powers Agreement establishing a unified emergency organization designated as the San Mateo Sheriff's Area Office of Emergency Services and Homeland Security are no longer effective or applicable in adequately addressing

the county's needs. The agreement was developed prior to national and international events that provide significant lessons that should be considered. Among these lessons is the ability to adequately define goals or identify measurable and/or attainable results.

The growth of special districts within the county, challenges regarding interoperable communications, and the presence of the San Francisco International Airport, all present unique challenges for the county's Emergency Services Council. This council, charged with oversight responsibility of emergency management efforts, has yet to adequately address the evolution of how public safety and additional core services are provided.

Based on these factors this research will address the following question: *How can the implementation of organizational design principles be introduced into the San Mateo County Emergency Services JPA to increase its effectiveness and relevance?*

C. PRACTICAL SIGNIFICANCE OF THE RESEARCH

The proposed research will apply existing literature support to affecting positive change to the JPA. This documentation will assist in identifying gaps and shortcomings of the current intergovernmental agreement. Additionally, the significance of this literature will be evident in developing a more forward thinking and applicable organizational design and structure aimed at increasing effectiveness. A possible outcome of this project is the establishment of a foundation for future research regarding other local agreements involving emergency management. This future research may address how best to integrate the private sector and nonprofit partners. While this effort is specific to the needs of San Mateo County, the resulting principles and structure may provide a blueprint that will inform similar organizations at the municipal, county, and operational area levels.

The intended benefactors of this study are the citizens, public safety professionals, and local elected officials within the county. The enhancement of the current organizational structure and an accompanying updated JPA will enhance the security of the citizens of San Mateo County. Furthermore, it will afford decision makers at this level the ability and incentive to act in a manner that is fiscally responsible and that promotes the best interests of the county as a whole. Homeland security practitioners at the state and federal levels may also realize the impact of potential changes. The results of this study may illustrate a positive change at the local level, thus causing state and federal participants to make the necessary adjustments to accommodate these efforts.

D. RESEARCH METHODOLOGY

The principal methodology used in developing this thesis was qualitative in nature. By observing current and past behaviors associate with the San Mateo County JPA and by conducting a thorough literature review, the author has drawn conclusions based on grounded theories developed as a result of the research.

This research is based on the premise that the existing policy document governing the intergovernmental organization is no longer effective. A policy option analysis will be employed to evaluate where and how this policy document can be improved. This method will include an objective and practical approach to developing effective options with an emphasis on the future success of the organization. By developing alternative policy options and courses of actions, San Mateo County will be provided an avenue to move to the future in a sensible and efficient manner. The intent is to develop, evaluate, and subsequently choose that course, or courses, of action that fill existing gaps and address current and future needs.

This analysis will rely on the application of current and relevant theories and the creation of models that promote best practices regarding organizational

design as it applies to an intergovernmental organization and accompanying agreement. The method will provide information and basis for identified alternatives and support for those determined to be most effective and relevant. Measurable results based on applicable theory and research will be developed to illustrate the value of chosen alternatives. The analysis will combine a broad, objective perspective with a practical approach. This perspective will include an acknowledgement of and consideration for the culture, values, goals, and interests of the organization and its stakeholders.

The preliminary alternatives will include:

- maintaining the status quo
- the inclusion of San Francisco International Airport (SFO) and/or special districts as full participants within the JPA, and
- the inclusion of SFO and/or special districts as associate members of the JPA.

With respect to interoperable communications, alternatives will include:

- abandoning the effort altogether
- application of the JPA as a strictly fiduciary body, and
- identifying the JPA as not only a fiduciary mechanism, but also the primary form of governance for the interoperable communication project within the county.

The analysis of each of the identified alternatives will be measured based on established criteria. This format will include effectiveness of services, fiscal responsibility, political feasibility, and sustainability/long-term impact. The intent of the analysis is to determine the value of each option by measuring it against the listed criteria. The goal is to arrive simply at measurable conclusions identified as “poor,” “moderate,” and “strong” within each category.

Table 1. Policy Option Table

Option	Effectiveness	Fiscal Impact	Political Feasibility	Sustainability

*Categories measured using “poor,” “moderate,” and “strong”

An overall assessment will be conducted following this analysis. The desired outcome is that this method will result in the identification of the alternative, or alternatives, that will provide the best answer to the proposed research question and, ultimately, best serve the county in its emergency services and homeland security efforts.

II. REVIEW OF THE LITERATURE

The intent of this review is to present applicable and relevant material regarding the effective governance of the San Mateo County Office of Emergency Services and Homeland Security (OES). The purpose of the discussed sources will be to evaluate the applicability and effectiveness of the current structure and to discover areas where this structure could be amended or improved to enhance the existing form of governance. The scope of this examination will include literature applicable to the organization's inception in 1963 through the present day. An examination of sources during the course of this time will provide an understanding of the evolution of the organization and what steps are needed to ensure its relevance, effectiveness, and future success.

Sources for this research were chosen to address the following categories:

- Background information, including existing literature that legislates current structure
- The role of special districts within the county's homeland security and emergency preparedness process
- The role of the San Francisco International Airport within the county's emergency preparedness and homeland security structure
- How to measure and increase the level of interoperable communication within the county's emergency preparedness and homeland security process
- How the implementation of organizational design principles throughout the San Mateo County Emergency Services Joint Powers Agreement increase its effectiveness

The sources presented range from those specific to San Mateo County to those that discuss principles that may be applied to a similar intergovernmental organization. These principles may be relevant to the needs and gaps within San Mateo County's existing emergency services governance structure.

The document that currently provides a governance mechanism for the San Mateo County Office of Emergency Services (OES) is the Emergency Services Joint Powers Agreement (JPA). The JPA is governed and administered by an Emergency Services Council. This council is comprised of one city council member from each city and a member of the county's board of supervisors. This council approves budgets and provides strategic direction for OES (San Mateo County Emergency Services Joint Powers Agreement, 1997, p. 7). This document will provide the foundation for necessary research and will be the focus of examination.

Guidelines and the legislative authority that allows government agencies to enter into joint power agreements can be found in the California Government Code. Specifically, section 6502 of the code states:

If authorized by their legislative or other governing bodies, two or more public agencies by agreement may jointly exercise any power common to the contracting parties, even though one or more of the contracting agencies may be located outside this state.

It shall not be necessary that any power common to the contracting parties be exercisable by each such contracting party with respect to the geographical area in which such power is to be jointly exercised. For purposes of this section, two or more public agencies having the power to conduct agricultural, livestock, industrial, cultural, or other fairs or exhibitions shall be deemed to have common power with respect to any such fair or exhibition conducted by any one or more of such public agencies or by an entity created pursuant to a joint powers agreement entered into by such public agencies.

Section 6502.7 continues to address this issue by stating:

(a) If authorized by their legislative or other governing bodies, two or more public agencies which have the authority to identify, plan for, monitor, control, regulate, dispose of, or abate liquid, toxic, or hazardous wastes or hazardous materials may, by agreement, jointly exercise any of these powers common to the contracting parties.

(b) The contracting parties may provide special services, including persons specially trained, experienced, expert, and competent to perform these special services.

(c) The provisions of this section are declaratory of existing law and do not limit any authority which already exists.

Finally Government Code Section 6503 articulates, “The agreements shall state the purpose of the agreement or the power to be exercised. They shall provide for the method by which the purpose will be accomplished or the manner in which the power will be exercised.”

In 2005, the San Mateo County Civil Grand Jury conducted a comprehensive examination of the state of the county’s emergency preparedness capabilities. The grand jury’s investigation included research in the areas of community preparedness, the readiness of public schools, the readiness of public transportation, and interoperable communication. Among the grand jury’s areas of concern were the role of special districts and the county’s relationship with SFO as it pertains to disaster planning and response (San Mateo County Grand Jury, 2005, p. 13). The report prepared by the grand jury will serve as a preliminary outline in identifying gaps in the current governance agreement. The grand jury report is just one external variable that influences the direction of the organization in question. Additional factors include the homeland security grant process and the regulations and governmental bodies within neighboring jurisdictions. Considering the actions and input from this type of external stimuli provides for an understanding of otherwise perplexing steps that may or may not have been taken. For this reason, resources from agencies such as the Bay Area Urban Area Security Initiative (UASI, 2009), California Special Districts Association, and the Municipal Code and Charter for the City and County of San Francisco may prove very enlightening.

A basic structure for an emergency management organization is presented in the United States Federal Highway Administration’s *Security and Emergency Management: An Information Briefing for Supervisors and Managers*

in State Departments of Transportation (2010). While its source may at first appear unrelated to this subject matter, this document presents a solid foundation in identifying roles within security and emergency management as well as articulating a mission and concept of operation. These principles remain consistent in all areas of emergency management. The Public Entity Risk Institute's *Characteristics of Effective Emergency Management Organizational Structures* suggests a self-assessment approach when measuring the relevance and applicability of an organization similar to OES (2001). The guidance provided by this source will likely help in developing the framework necessary to address principle and design issues within the study. The development of essential characteristics, based on numerous case studies, will be valuable in evaluating the existing form of governance and directing an amended, more applicable structure.

The issue of training remains very important to this discussion. In order to succeed, change must be accompanied by some type of education, orientation, or practical training. Because training is included in the mission of OES, its relevance is even greater. Two practical sources provide structure, guidance, and a baseline by which to measure a training plan or program. These sources include the California Emergency Management Agency's (CalEMA) *California Specialized Training Institute* (CSTI) and United States Department of Homeland Security's (DHS) *Homeland Security Exercise and Evaluation Program* (HSEEP). Both resources provide for a measurable standard by which to establish and evaluate any training endeavor in the field.

When Do Organizations Need to Change (Part I)? Coping with Incongruence presents an appropriate discussion regarding identifying how an organization should recognize when change is necessary (Diedrich, 2003). This resource discusses the ability of an organization to adapt and uses a design process based on models focused on coordination and performance. The contextual aspect in this piece provides for a universal applicability that can be

useful within several different types of organizations including the subject of this study. The need for change within the current county's approach is discussed within *San Mateo County Operational Area Joint Powers Agreement Update Plan* (Yballa, 2009). The suggestions and recommendations within this document convey a lack of thorough understanding of the joint powers concept and this specific agreement. However, it does accurately identify areas for improvement, including the need for revision and a regional approach to response and recovery.

A realization that change is necessary is not always readily accepted. Often a reluctance to change exists even when faced with overwhelming evidence that it is required or inevitable. The psychology of an organization plays a tremendous role in its progress. Existing relationships, past experiences, and a fear of changes all contribute to a sense of apprehension when any type of change is proposed. For example, Clizbe's *The Psychology of Terrorism; The Response of Relief Organizations to Terrorists Attacks* speaks to the needs such as support, linkages, and information associated with dynamic of group interaction and change (2007). In *The New Global Insecurity*, Moghaddam (2010) addresses perceived inequalities related to what he describes as the "resource crunch." Moreover, ideas concerning intergroup contact, adaptiveness, and pre-adaptiveness from Moghaddam's *How Globalization Spurs Terrorism* are extremely applicable to this discussion (2008). Similarly, Currao addresses many of the same issue when discussing the emergency managers role in facilitating trust in a challenging environment (2009).

The important relationship between structure and mission described in *Inducing Adaptation in Human Organizations: Concept and Experiment Design* will be helpful in providing direction for this study (Entin, 2004). There are two relevant aspects to this source. Initially, the process of realizing when the established structure is not appropriate for the stated mission is crucial in

effecting change. Additionally, the method for amending or changing the structure to fit the mission is essential in implementing the appropriate design for the organization.

An important aspect of this study is the incorporation of special districts, some being nonprofit groups, within OES' organizational structure. *Predicting Organizational Crisis Readiness: Perspectives and Practices toward a Pathway to Preparedness* provides a comprehensive view of the effective inclusion of the private sector and nonprofits within the emergency management community (Light, 2008). In addition to emergency management, OES is responsible for the county's homeland security needs. *Moving Toward More Capable Government: A Guide to Organizational Design* examines the restructuring of an organization with a homeland security slant (Stanton, 2002). This source is unique in that it seeks solutions to problems at the federal level that are applicable at the local and county levels. It provides interesting homeland security related concepts and approaches that would likely prove beneficial at the county level.

While not intended to serve as a case study, this examination will look to other organizations for models that may be appropriate within the existing environment. Such examples can be found in the Caribbean Disaster Emergency Management Agency (CDEMA) and its Caribbean Community and Common Market (CARICOM) Regional Organization for Standards and Quality (Caribbean Disaster Emergency Management Agency [CDEMA], 2011).

The Department of Homeland Security's Communication Interoperability and Compatibility Program (SAFECOM) Science and Technology Directorate is an outline of the emergency responder interoperability discussion (Communication Interoperability and Compatibility Program [SAFECOM], 2006). This document clearly defines the problem, identifies goals and provides a strategy to reach those goals. The SAFECOM program provides for a strong starting point in examining interoperable communications within this context. Specifically, the winter 2007 issue of the program's publication *Interoperability*

Technology Today includes articles entitled *Disaster Management Interoperability Services Improves Emergency Response Collaboration* (Interoperability Technology Today, 2007, p. 1) and *Baseline Survey Identifies National Interoperability Capacities for Nation's Emergency Responders* (Boyd, 2007, p. 2). These articles address communication problems faced by emergency services organizations at every level and provide clear options.

The focus of this research is not technical and not aimed at addressing the “nuts and bolts” of how interoperability systems are to be integrated. Rather, it focuses on the important component of governance and how it can be most effective in enhancing interoperability. The National Association of State Chief Information Officers' *We Need to Talk: Governance Models to Advance Communications Interoperability* examines important factors, including culture, the establishment of a governing body, political considerations, authority, developing partnerships, and coordination (2005). The case studies included in this report provide relevant examples to nontechnical issues involving interoperability. The same issue is addressed in the *Department of Homeland Security's Coordination and Partnerships: Awareness Guide*. This publication resists the temptation to focus on technology and examines how interagency and intergovernmental coordination can improve regional interoperability communication performance (Public Safety Wireless Network Program Coordination and Partnerships, 2003a).

Among the most exciting sources within this research is presented by the Public Safety Wireless Network. This entity's *Special Services District Interoperability Report* incorporates an interoperability discussion that is focused on special districts and nongovernmental organizations (Public Safety Wireless Network Program, 2003b). This report addresses central themes of this research, including coordination with public safety agencies and data collection and sharing.

The sources discussed within this review combine to address two significant issues regarding the level of preparedness and security in San Mateo County. Specifically, this material assists in identifying gaps and shortcomings in the current homeland security and emergency preparedness governance structure. It continues to provide strong case studies and theories that are applicable to an amendment or replacement of the design of the intergovernmental process that currently exists. As San Mateo County strives to maintain a high level of security and preparedness for its citizenry, the manner in which it provides these services must evolve to meet new demands and address ever-changing variables. The material presented in this review will likely provide for an ideal blueprint in preparation of a relevant and effective emergency services organization and governing body.

III. BACKGROUND

A. ORIGIN, HISTORY, AND STRUCTURE OF THE ORGANIZATION

The San Mateo County Office of Emergency Services (OES) was established in 1963 as an independent county department to serve the then 440,000 county residents (Board of Supervisors, 1963). In 1997, emergency management responsibilities were transferred to the Sheriff and the San Mateo County Sheriff's Area Office of Emergency Services was formed, evolving into the Office of Emergency Services and Homeland Security following the events of September 11, 2001. This agency is currently funded through a Joint Powers Agreement (JPA) among 20 incorporated cities and the County of San Mateo itself (refer to Appendix A). The contribution amount of each city to the JPA is based upon a formula that includes the population and average assessed property value. The county then matches the funds contributed by all of the cities. The remainder of the OES budget is comprised of state and Federal Emergency Management Assistance (FEMA) program funds (Joint Powers Agreement, 1997). Today's San Mateo County population is approximately 750,000 (Census Bureau, 2009).

The JPA is governed by an Emergency Services Council. This council is comprised of one city council member from each city, and a member of the county's board of supervisors. This council approves budgets and provides strategic direction for the JPA (Joint Powers Agreement, 1997).

OES is staffed with a sheriff's lieutenant who serves as its director, one sheriff's sergeant, one sheriff's deputy, and four district coordinators as full time personnel. An additional 17 sheriff's deputies perform ancillary duties for the agency on a part time basis. The OES staff provides planning and training services to the 20 cities in the county. Currently, all 20 cities in San Mateo County have emergency plans that are compliant with the National Incident Management System (NIMS) and the Standardized Emergency Management

System (SEMS). OES provides an ongoing training program for city and county employees on NIMS and SEMS (OES Memorandum, 2008).

The organizational charts for the San Mateo County Sheriff's Office and the San Mateo County Sheriff's Office of Emergency Services and Homeland Security are listed in Figure 1.

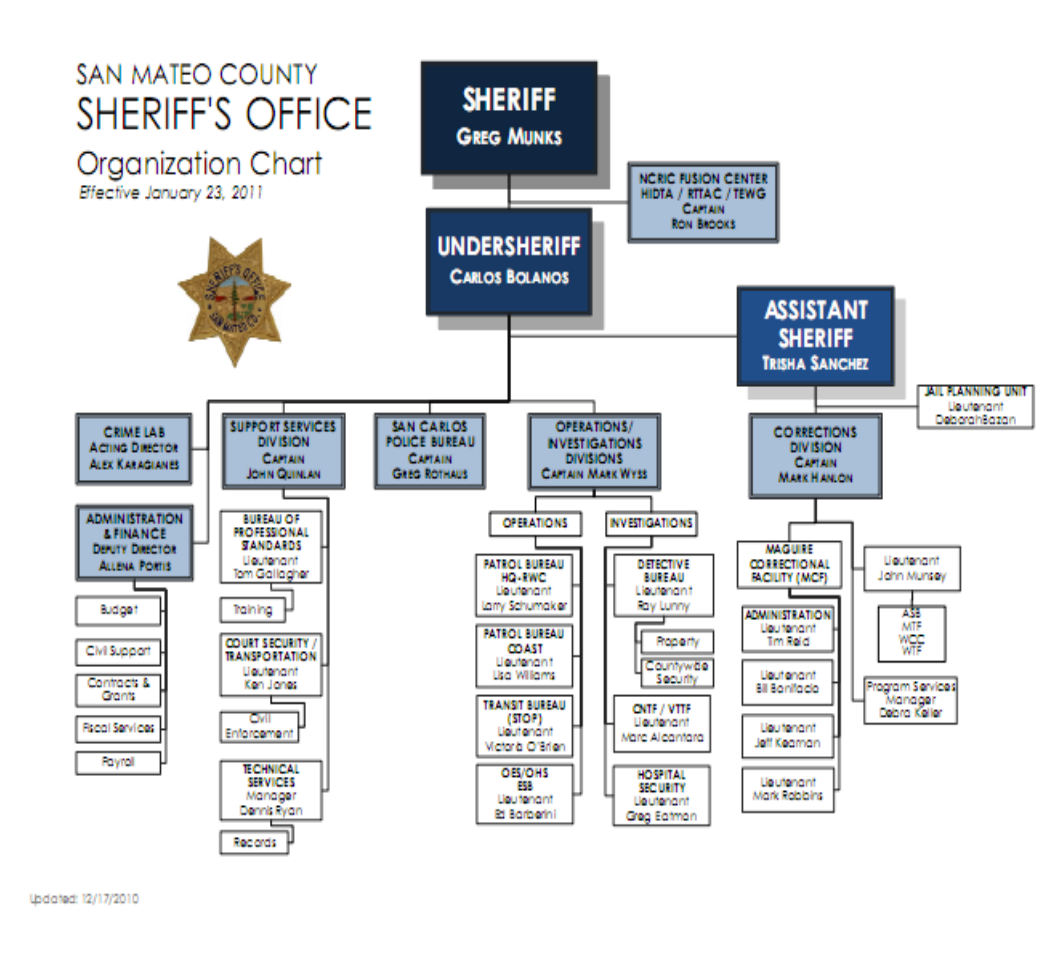


Figure 1. San Mateo County Sheriff's Office Organizational Chart (From San Mateo Sheriff's Office, 2011).



San Mateo County Sheriff's Office Area Office of Emergency

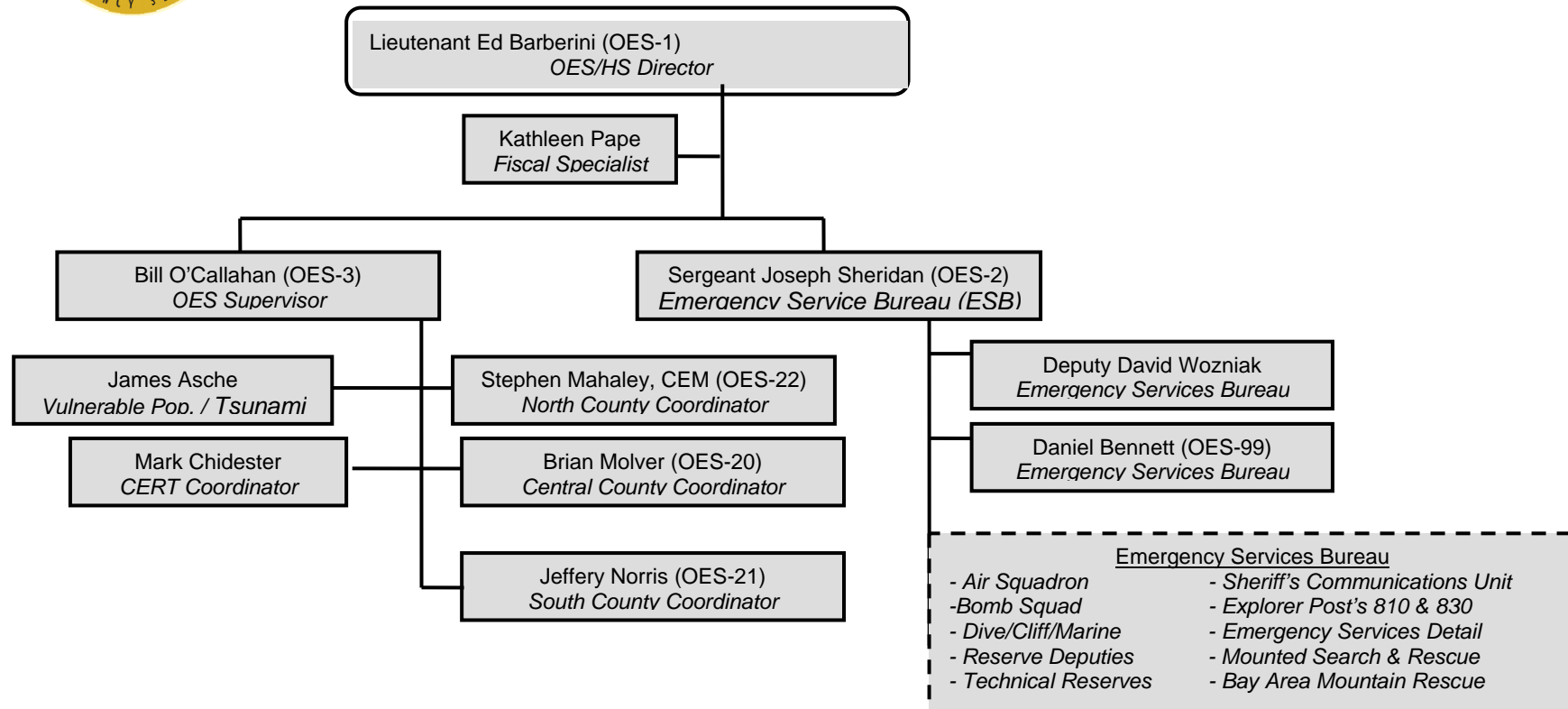


Figure 2. OES Organizational Chart

B. THE EVOLUTION OF THE ORGANIZATION'S MISSION, GOALS, AND OBJECTIVES

The current OES mission statement states:

The mission of the Area Office of Emergency Services is to provide planning, preparedness, public information, training, and Federal/State intergovernmental emergency services coordination for the twenty cities/towns within San Mateo County, as well as for County government, to enable them to respond to, minimize the impact of, and recover from, a major emergency, disaster, or homeland security incident with the least possible loss of life or property. The Hazardous Materials Emergency Response Program provides a team of trained Hazardous Materials specialists who respond to and manage HazMat emergencies and potential bio-terrorism threat throughout San Mateo County on a seven-day, 24 hour basis (Joint Powers Agreement, 1997).

In an effort to achieve its stated mission OES has developed the following focus areas.

1. Planning

OES assists all cities and the county with annual an annual review and update of Emergency Operations Plans (EOP). The agency consults with and assists the cities and county with Emergency Operations Center (EOC) preparedness. Finally, the agency provides local support to the cities in conducting all-hazard assessments.

2. Training

OES conducts standardized training for all regional public safety agencies in NIMS, SEMS, and the Incident Command System (ICS). This training includes orientation, the role of the executive, and field response. The agency is a charged with coordinating EOC procedural training, hazardous materials training, explosive ordinance disposal, weapons of mass destruction, and tactical counter-assault training for first responders. Specialized emergency management

training is often facilitated through FEMA and the California Emergency Management Agency's (CalEMA) California Specialized Training Institute (CSTI) (CSTI, 2010).

3. Public Preparedness Programs

The agency has developed numerous community outreach programs that seek to educate the public in the field of emergency preparedness. The programs include a Website, community events, and marketing via all media outlets. Strong relationships have been established with community groups, schools, churches, and business groups in the community.

4. Exercises

OES is responsible for the coordination of countywide emergency related exercises. It has subscribed to the federal guidelines within the Homeland Security Exercise and Evaluation Program (HSEEP) (HSEEP, 2010). The agency assumes the lead role among local organizations when participating in state, regional, and national exercises. Furthermore, OES is often requested to assist local municipalities with their own EOC or disaster related drills and exercises.

5. Emergency Response

An OES duty officer is on call 24 hours a day to respond to disasters, emergencies, and critical incidents. Under the direction of the Incident Commander (IC), the duty officer is required to provide logistical support, prepare Incident Action Plans (IAP), and assist in providing public and media information.

The Hazardous Materials Team (HazMat), Explosive Ordinance Disposal Unit (EOD), and the Terrorism Counterassault Team (TCAT) respond throughout the county to conduct hazardous entries, address tactical weapons of mass destruction (WMD) threats, conduct sampling and testing, provide for safe disposal, and complete the required reporting to state and federal agencies.

Eleven additional units, including an air squadron, marine unit, and high angle rescue unit, respond throughout the county and state as requested. OES serves as the mutual aid coordinator for the San Mateo County Operational Area (Joint Powers Agreement, 1997). It is required to communicate with the region and state in order to adhere to all mutual aid and emergency reporting protocols.

6. Communication

Under the existing JPA, OES is responsible for the maintenance of all law enforcement mutual aid channels. The agency also maintains a microwave link with all cities and hospitals. OES staff coordinates with local 911 centers during critical incidents and emergencies.

7. Specialized Equipment

OES maintains a large amount of specialized equipment ranging from fire apparatus and tactical vehicles, to mobile light standards and generators. Communication vehicles, radios, mobile command centers, and personal protective equipment are all made available to county agencies via OES.

IV. THE GOVERNING INTERGOVERNMENTAL AGREEMENT

A. THE JOINT POWERS AGREEMENT AND GOVERNANCE

The lack of attention paid to the field within the county has led to an emergency management process that does not provide for the necessary level of collaboration or the efficient dissemination of vital resources. Unless these important factors are included in the county's emergency plans and response strategies, the optimum level of safety, security, and preparedness will not be realized by the county or their partner municipalities.

In 2005, the San Mateo County Civil Grand Jury conducted a comprehensive examination of the state of the county's emergency preparedness capabilities. The grand jury's investigation included research in the areas of community preparedness, the readiness of public schools, public transportation, and interoperable communication. Among the grand jury's areas of concern were the role of special districts and the county's relationship with SFO as it pertains to disaster planning and response (Grand Jury, 2005).

The grand jury identified questions in an effort to determine whether the existing JPA satisfied the county's emergency management needs. The report made reference to the JPA, which is described in the report as an agreement between municipalities and the county that "does not include special districts as voting members" (Grand Jury, 2005, p. 13). The JPA does reference special districts as partners; however, with the exception of police and fire services, their inclusion and participation has been extremely limited (Joint Powers Agreement, 2007). Very few special districts have adequate disaster plans, and most special districts do not have preparedness agreements or procedures established with the local governments whose services they supplement. In addition, a significant disconnect exists between these districts and local municipalities.

B. ROLES, OBLIGATIONS, AND CONTRIBUTIONS OF PARTICIPANTS

Municipal participation is essential to successful countywide preparedness and readiness effort. This participation is not always easy to secure and, when available, is often accompanied by specific localized agendas rather than a broad view. All involved must arrive at the realization that their respective roles and obligations to the safety and security of the county are largely based on risk.

The assessment and prioritization of homeland security risks within San Mateo County are directly related to a regional collaborative effort to address the same risks to the San Francisco Bay Area. This relationship is one of both necessity and accuracy. Requirements mandated within the Bay Area Urban Area Security Initiative (UASI) make a cooperative approach necessary to ensure access to the funding required to assist in mitigating or reducing identified threats (DHS, 2010). Additionally, partnerships developed with local, state, and federal agencies provide essential resources that facilitate the capability to conduct an accurate and thorough assessment. Additional benefits realized as a result of participation in this process are an enhanced awareness of the “big picture” and a greater understanding by local entities of regional threats.

The county is mindful of the framework established by state and national government that calls for the setting of security related goals, the identification of key resources and critical infrastructure sites, the assessment of risk, the prioritization of risk, the implementation of developed programs, and the development of a process to measure the effectiveness of implemented programs (DHS, 2010). The process often poses significant challenges as information obtained from assessments conducted at individual sites, or for individual groups, is analyzed to form a comprehensive countywide assessment.

The San Mateo County Office of Emergency Services and Homeland Security adheres to a fairly standard methodology when defining or measuring risk. This process includes three variables: threat, vulnerability, and consequence. The threat component provides for the likelihood of an event

occurring. Vulnerability serves as the county's susceptibility to a specific scenario. Consequence evaluates a worst-case scenario considering human, economic, mission, and psychological effects (Bay Area UASI, 2010b, p. 4). When conducting an assessment of an individual site or asset, the CARVER/Shock method is the norm (U.S. Department of Agriculture, 2007, p. 2). This method includes examining the criticality, accessibility, recuperability, vulnerability, effect, recognizability of the site, and the combined health, economic, and psychological impact of a potential attack.

This approach has proved very effective when applied to individual assets or sites; however, it is not as useful a tool in assessing homeland security risks as a whole. This is primarily due to the fact that the evaluated asset or site is not examined within the context of additional locations that contribute to solidifying the county and region's infrastructure. This type of assessment accurately illustrates the risk to the site, but it fails to articulate how the condition contributes to the risk assumed by the community. Prioritization, as listed in the National Infrastructure Protection Plan, is the piece missing from this limited approach (DHS National Infrastructure Protection Plan).

Municipalities within the county have fallen into the same "trap." Their narrow focus is a symptom of a much larger issue. Until all participants are willing to view their security and preparedness role and obligation as that of a more regionally focused project, limited progress can be expected. The inherent interdependence that exists among critical infrastructure sites and the key resources throughout the county must be acknowledged so that governments can invest wisely, responsibly, and with frugality. The latitude afforded to this type of investment will be realized when a more regional strategy is adopted, allowing for the sharing of resources and a more appropriate level of response.

In an effort to assume a more comprehensive approach to risk assessment and management, the county and its external partners in the Bay Area have established a system that includes the monitoring and understanding

of threats, prioritizing, and the ability to update strategy through action. Understanding the nature of risks enables risk managers to forecast potential problems and to implement appropriate preventative measures. This process as a whole allows the organization to validate the risk and to measure objectively the county's existing capabilities. The validation of a risk offers the opportunity to gain a better understanding of its drivers, such as threat, vulnerability, or consequence factors. Assessing capabilities is as simple as assigning a level (low, medium, or high) to a desired capability. A comparison of a risk validation and a capabilities assessment provides for a gap analysis that can accurately point to where attention should be focused. These steps lead to probably the most difficult portion of the risk management—establishing prioritization criteria.

San Mateo County has joined a regional effort to utilize a standardized prioritization guide to establish priorities effectively within a risk management program. Twenty-five areas have been identified as key resources or critical infrastructure areas (refer to Appendix C) (Bay Area UASI, 2010a). Consequence types associated with risk are assigned to each of these areas. Each consequence is assigned a numerical value based on established criteria. Listed in Table 2 is a matrix containing an example of the prioritization criteria for commercial facilities for public assembly (Bay Area UASI, 2010a).

Table 2. Risk Metric

Consequence Type	Priority 1	Priority 2	Priority 3	Priority 4
Economic Loss	In excess of \$10 billion	Between \$1 and \$10 billion	Between \$100 million and \$1 billion	Less than \$100 million
Capacity (Based on maximum occupancy)	In excess of 15,000	Between 1,500 and 14,999	Between 150 and 1,499	Less than 150

Consequence Type	Priority 1	Priority 2	Priority 3	Priority 4
Floor Space (Based on gross square footage)	In excess of 2,000,000	Between 1,000,000 and 1,999,999	Between 500,000 and 999,999	Less than 500,000
Annual numbers of visitors	In excess of 20 million	Between 2 and 20 million	Between 200,000 and 1,999,999	Less than 200,000
Private School Enrollment	N/A	In excess of 1,000	Less than 1,000	N/A
Example	NFL Stadium	Coliseum	Mega Church	High School Stadium

This matrix illustrates the process for which consequences of greater significance are assigned scores of one or two. The implementation of this standardized method allows for critical infrastructure sites to be viewed within the context of the entire community in order to realize fully their relevance and level of importance. It should be noted that for this process to function correctly, subject matter experts are required to ensure that each consequence type is assigned an appropriate numerical value. This approach is not unlike FEMA's approach to mitigation planning, although colors are used to illustrate severity rather than numerical scores (FEMA, 2001).

As a result of available regional and federal resources, San Mateo County has made significant strides in assessing and prioritizing homeland security risks within its operational area. This effort has resulted in a greater collaboration with the national and bay area governments. Furthermore, it has afforded the county the ability to remain acutely aware of those risks experienced by neighboring entities and to have its own areas of risk recognized and incorporated into regional risk awareness and management programs. The county's efforts are also consistent with a majority of the principles listed in the National Infrastructure Protection Plan (DHS, 2010c).

While it has been effective, San Mateo County's approach to risk assessment and management is not without its flaws. Among those flaws is an omission of an open discussion that identifies what an acceptable level of risk is. Dr. Willis's presentation to the Government Accountability Office (GAO) emphasized the importance of seeking the public's input on homeland security issues and the prioritization of associated risks (GAO, 2008, p. 17). If the public is going to be an active participant in such a dialogue, it must be granted access to relevant information. The San Mateo County Office of Emergency Services and Homeland Security is overseen by an Emergency Services Council that holds open meetings on a quarterly basis (JPA, 1997, p. 5).

Furthermore, community outreach programs and events are held on a regular basis reinforcing the importance of preparedness; however, the public conversation described by Dr. Willis is not incorporated in the current approach. Nor is the public provided with appropriate information or an appropriate forum to facilitate such a dialogue. A contributing factor to this lack of dialogue is an obstacle described by Dr. Willis. This involves a reluctance of politicians to focus on long-term issues and recognize ever-changing risks and risk levels (GAO, 2008, p. 18). The Emergency Services Council is comprised of local elected officials from municipalities within the county (JPA, 1997, p. 6). These politicians are often driven by vocal constituents whose views and desires may not coincide with validated risks. No matter how successful and thorough the assessment and prioritization of risk is, it is occasionally discarded by elected officials who have additional priorities not associated or related to risk.

Partnership challenges among the public and private sector described by Dr. Willis are experienced within San Mateo County (GAO, 2008, p. 22). Initially, expectations held within the private sector are not often shared by county government. This occurs for two reasons. One, the goals of the private sector are based on bottom line considerations. This concern becomes a major factor for industry when assessing risk. The government often loses sight of this aspect

and makes independent decisions that will likely have a detrimental effect on the private sector's ability to flourish. A second reason for this disconnect is simply communication. Both the public and private sector tend to develop policy and make decisions without consulting with one another. These programs are often well thought out and would likely succeed if they had been developed in a more cooperative environment.

An additional partnership challenge is based on reliance. Government and the private sector need one another if they are to successfully manage and reduce risk. Public entities are granted the legislative authority to develop and implement policy; however, the resources necessary to make these programs successful are often held by private entities. The private sector relies on government to develop and implement effective and appropriate policy, often based on risk. Government relies on industry to provide for the resources necessary to "buy down" and manage risk.

Finally, the county approach to risk management fails to provide for a process to measure its effectiveness. This important component is the only area for the National Infrastructure Protection Plan omitted by the county's regional risk management actions (DHS National Infrastructure Protection Plan, p. 2). An attempt is made within the UASI funding process, in the form of milestones, to address this problem. Unfortunately, these procedures address individual projects and do not examine the assessment of risk as a whole. Without this valuable feedback and evaluation, it is premature to comment definitively on the current county's risk management approach. The lack of participation of the public, the private sector, and the cities themselves may not allow for an accurate measure. However, should these groups be included in measuring performance, their lack of current input would likely be realized and addressed.

San Mateo County's approach to assessing and managing risk is difficult to comprehend. The ability to work with national and regional partners has provided tremendous opportunity to mitigate both local and regional risk. The

ability to prioritize these risks has solidified the county's position within the region as related to homeland security. It has also contributed to the region and state through data sharing and standardized prioritization criteria. Unfortunately, little progress has been made in including municipalities, the public and private industry in the process. This challenge is compounded by the fact that the relevant elected officials do not share the same concern regarding the omission of these groups. The first step in addressing this problem is for all participants to acknowledge their own obligation and duty in measuring and mitigating risk regardless of jurisdictional lines. This may lead to a greater clarification of roles.

C. THE CURRENT APPLICATION OF THE EXISTING POLICY DOCUMENT

Many view the existing county agreement as simply a funding document. Very little credence is given to the Emergency Services Council's ability to make policy decisions. Some may not even be aware that the council exists at all. While this perception is not accurate, it does contribute to the effectiveness of the homeland security and emergency management process within the county. Contributions to the JPA are considered similar to an insurance policy by many municipalities. This insurance policy mentality contributes to a realistic response expectation during a critical incident and a lack of interest in planning, training, and exercise. It may be comforting to believe that because a check is written on annual basis that all emergency management needs have been met; however this is far from the case.

The existing JPA effectively excludes special districts from the information collection and intelligence dissemination process. Because several of these districts provide services across jurisdictional lines, this exclusion will likely result in a lack of coordination, inefficiency, and a duplication of information collection and sharing efforts. These are significant consequences to this type of disconnect; however, it can be argued that under the existing agreement, no such collaboration is permitted. While this may not be the intent of public safety

agencies and community leaders, their reluctance to review and discuss the revision of policy does send the message that they are content with the status quo under the 1997 policy document.

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V. ABSENT STAKEHOLDERS AND RELEVANT POTENTIAL CONCEPTS

A. SAN FRANCISCO INTERNATIONAL AIRPORT

The San Francisco International Airport (SFO) is owned and operated by the city and county of San Francisco. Over 30 million travelers pass through SFO each year (OES Memorandum, 2008). The fact that this airport is located within San Mateo County requires that agencies within the county plan and coordinate their response to emergencies. The presence of the airport elevates risk and enhances vulnerabilities within the county. On the other hand, the airport makes valuable resources available to the county in emergency and/or disaster situations. Via OES, the county and SFO have entered into several mutual aid agreements.

Despite these agreements, SFO is not included as a member of the county's Emergency Services Council. The San Francisco Police Department provides basic police services to the airport and enforces the security plan established by the Transportation Security Administration (TSA) (OES Memorandum, 2008). The San Francisco Police Department also provides for the individual security of airlines and assumes a prominent position within SFO's disaster response capabilities. The San Mateo County Sheriff's Office is responsible to investigate all reports of criminal activity at SFO and also plays a role in its response to critical incidents. The San Francisco Fire Department provides fire protection, emergency medical services, training, and fire prevention at SFO (OES Memorandum, 2008).

At first glance, SFO's emergency management relationship with OES appears to be fairly solid. The county and SFO are currently mutual aid partners in several areas including:

- SFO relies on county hospitals for surge capacity in the event on an incident at the airport.

- SFO has a joint agreement with the San Mateo Department of Public Health regarding the protection against and treatment of communicable diseases.
- SFO conducts an annual air crash exercise involving county first responders.
- Fire agencies at SFO and within the county are available to assist one another when necessary (Grand Jury, 2005, p. 19).

These strengths are accompanied by areas that leave significant room for growth. The problem areas include:

- Most of the agreements listed above are fairly informal and not accompanied by a memorandum of understanding (MOU) or other type of agreement.
- SFO has a positive, yet informal relationship with OES.
- Overall emergency planning in the county is the primary responsibility of sheriff and OES which is funded through a JPA and governed by the Emergency Services Council.
- SFO is not a member of the JPA or represented on the Emergency Services Council.

B. ADDITIONAL SPECIAL DISTRICTS

In addition to the 20 incorporated cities, 24 special districts (refer to Appendix B) are also located in San Mateo County. These districts provide specific services to designated populations within the county. Most often, these districts are associated with police, the fire service, water, sanitation, health, or resource conservation. The type of services provided by these districts are consistent with those provided at the department level within larger municipalities. Many of the services provided by special districts are critical to the county's ability to respond in the event of a disaster. For example, instances of a large fire, flood, storm, epidemic, riot, or earthquake would involve a high level of interaction and cooperation among OES and these districts. California defines a special district as an "agency of the state (created) for the local performance of government or proprietary functions within limited boundaries."(California Special Districts Association, 2010)

As such, a special district is a form of government that delivers a specific service within a defined geographic region. Districts are often created as a result of an insufficient tax base or competing demands for public funds that make it difficult for a municipality to provide an essential service to its citizens. When residents, property owners, or local government desire a new service or an enhanced level of an existing service, they may choose to form and fund a special district to provide it to them. Like most special districts in the state, the special districts within San Mateo County are independent and have their own board of directors or commission that are elected by the voters (San Mateo Guide to Government, 2010). While these districts remain accountable to the voters in their designated areas, they are also subject to critical oversight by state and county governments.

During the course of its examination, the Grand Jury developed a question that asks, *“To what extent are special districts in San Mateo County prepared to respond to a disaster”* (Civil Grand Jury, 2005)?

As mentioned earlier, a 2005 grand jury report made reference to the JPA, which is described as an agreement between municipalities and the county that “does not include special districts as voting members” (Civil Grand Jury, 2005). The JPA does reference special districts as partners; however, with the exception of police and fire services, their inclusion and participation has been extremely limited. Very few special districts have adequate disaster plans. Most special districts do not have preparedness agreements or procedures established with the local governments whose services they supplement. A significant disconnect exists between these districts and local municipalities.

Inadequate communication channels have contributed to deficiencies in the coordination among special districts, municipalities and OES. Existing communication problems include:

- The lack of a common communication frequency in the county and funding to maintain it.

- A lack of uniformity in the radio equipment used countywide.
- The fact that special districts cannot access the county's mutual aid radio network. (Civil Grand Jury, 2005)

These preliminary observations indicate that the preparedness level and capabilities among special districts in the county could be significantly improved.

C. INTEROPERABLE COMMUNICATIONS

With regard to interoperable communications, the grand jury proposed questions directed at how the current level of interoperability can be enhanced as well as how the county can best prepare itself for mandated changes to public safety radio networks, including narrow banding (Grand Jury, 2005, p. 27). These problems are due, in part, to a lack of consensus among stakeholders in accepting and adopting specific technology and communications systems.

The digital radio communication network used in San Mateo County was completed in 2004 at an approximate cost of 24 million dollars (Grand Jury, 2005, p. 27). The county's Information Services Department (ISD) maintains the system that is used primarily by county departments including the Sheriff's Office, Public Works, and the Health Department. The system is extremely resilient and capable of accommodating a large number of additional users. There is a significant cost associated with the purchase this system for both receiving/transmitting stations and mobile radios. These costs include new hardware, software, enhanced towers, and prolonged maintenance requirements. Current users of this system pay a fee based on the number of mobile and portable radios in use. As a result of these associated costs, municipal agencies are reluctant to upgrade to digital technologies resulting in many more analog receivers than digital receivers in the county's most populated areas. The county, via the Emergency Services JPA, continues to maintain four analog mutual aid channels for large events and interagency law enforcement communication within the county itself.

In addition to the county's digital system, the 20 municipal police departments continue to employ older analog communications systems. Some of these agencies share radio channels resulting in a total of 17 existing analog frequencies that serve as primary law enforcement channels (Public Safety Communications). All municipal fire agencies within the county have recently consolidated their communication and operate using three primary VHF analog channels (Public Safety Communications). Over the last 15 to 20 years, municipal agencies have invested in adding additional analog receivers in the field to support an increased use of portable and mobile radios. The Federal Communications Commission (FCC) has mandated that the width of public safety radio frequencies be reduced to 12.5 kHz by January 1, 2013 (FCC, 2010). The municipalities within San Mateo County are working independently to satisfy this requirement. Each city is confident that its respective analog system will continue to operate at a satisfactory level following this change. However, the first phase of an additional narrow banding requirement to 6.25 kHz is scheduled for 2017 (FCC, 2010). This deadline has been established for public safety 700 MHz radios only. The timeline for the VHF and UHF frequencies has yet to be established. It is unlikely that existing systems will be able to function with this future adjustment.

Regardless of federal mandates and timelines, the true measure of interoperable communications is how it can increase the effectiveness of first responders in their response to critical incidents. Several recent incidents have illustrated the need for a serious shift toward regional interoperability.

- On Thursday, July 8, 2010, and Friday, November 5, 2010, San Mateo County deployed a countywide mobile field force to Oakland, California to assist with instances of civil unrest. These incidents were as a result of a verdict and sentencing of a Bay Area Rapid Transit (BART) police officer charged with murder and convicted of involuntary manslaughter. These mobile field forces were comprised of approximately 70 personnel from the 21 law enforcement agencies within the county. At the time of each of these deployments, no San Mateo County agency possessed the

ability to communicate with agencies outside of the county via radio. In fact, many officers were unable to communicate with agencies located within the county. As a result, the operation relied on “radio swapping” with the Oakland Police Department. Available resources allowed for only a fraction of deployed personnel to communicate effectively with the Oakland Police Department. This inability to communicate posed major logistics challenges and presented significant officer safety concerns.

- On Thursday, September 9, 2010, the City of San Bruno, located in the northern part of the county, experienced a major gas line explosion and subsequent fire. This incident destroyed a large portion of an entire neighborhood and required the response of every law enforcement and fire agency in the county. An analog-based law mutual aid channel was employed to manage the incident and the fire agencies were able to communicate via there established analog channels. However, the ability to communicate across disciplines was nonexistent. Nine years after September 11, 2001, the fire service and law enforcement were still operating completely independent of one another, even with the published relevant findings of the 9/11 Commission (9/11 Commission, 2004).
- On Monday, November 1, 2010, a San Mateo County Mobile Field Force was deployed to San Francisco, California to assist with civil unrest following the San Francisco Giants’ World Series victory. Once again, an appropriate level of communication did not exist and the exchange of portable radios was necessary.

There are three primary contributors to the challenge of interoperability for San Mateo County. The first is a lack of confidence in transitioning to a digital system accessible via the Project 25 (P25) platform (DHS, 2010d). This is based on early problems experienced within the county during the initial implementation of a digital system. The second factor is cost. Municipalities view the cost of such a conversion to be unreasonable and not feasible, especially in a trying economic environment. The final contributor is a lack of established governance that would provide an opportunity for collaboration and direction for an evolution to a more interoperable working environment.

In 2007, the Redwood City Police Department joined the San Mateo County Sheriff’s Office in transitioning to a UHF digital trunked radio system. During the implementation phase of this project, several problems were

encountered. The most glaring of these were issues with the reliability of portable radios. As the level of dissatisfaction grew among officers, the labor union became involved in a very public debate with the department's administration. As a result, the department returned to its analog system, leaving the Sheriff's Office as the only agency in the county employing the digital trunked system. Regardless of what their true objections are to a digital system, the other municipalities in the county have pointed to Redwood City's experience as a reason not to make a transition. After three years of evolving technology, this example is cited regularly as a reason for hesitancy in moving toward regional interoperability.

The county has taken strides to illustrate the value of interoperability. It has invested in portable and fixed interoperable devices to both enhance the level of the county's response capabilities and to encourage its county partners to take their own steps in improving communications. The graphic in Figure 13 illustrates how the current interoperability device works when deployed. A drawback to this approach is that it is not timely and requires additional personnel in the field to establish and maintain an adequate level of interoperable communication. Additionally, a great deal of technical expertise is required to deploy this system resulting in an extremely limited number of personnel with the knowledge to make it effective.

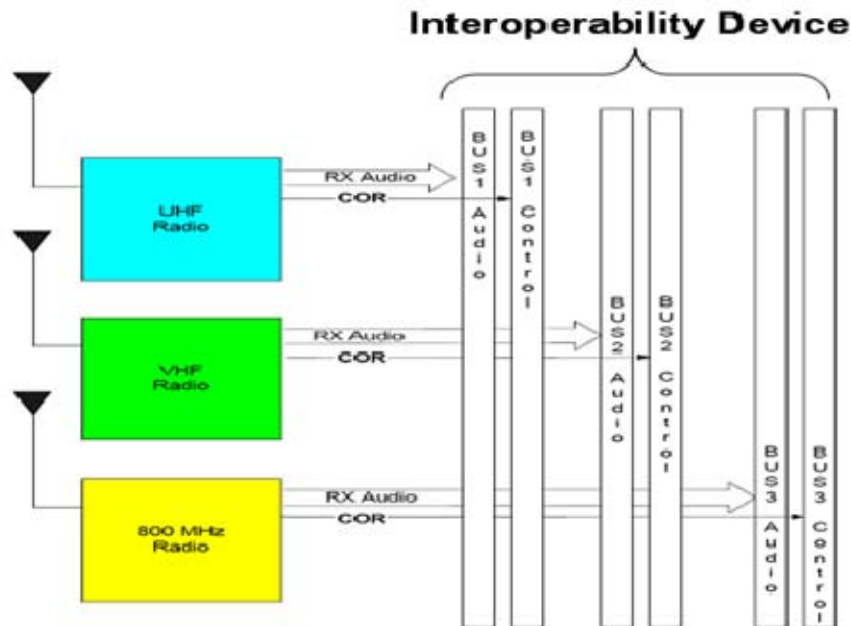
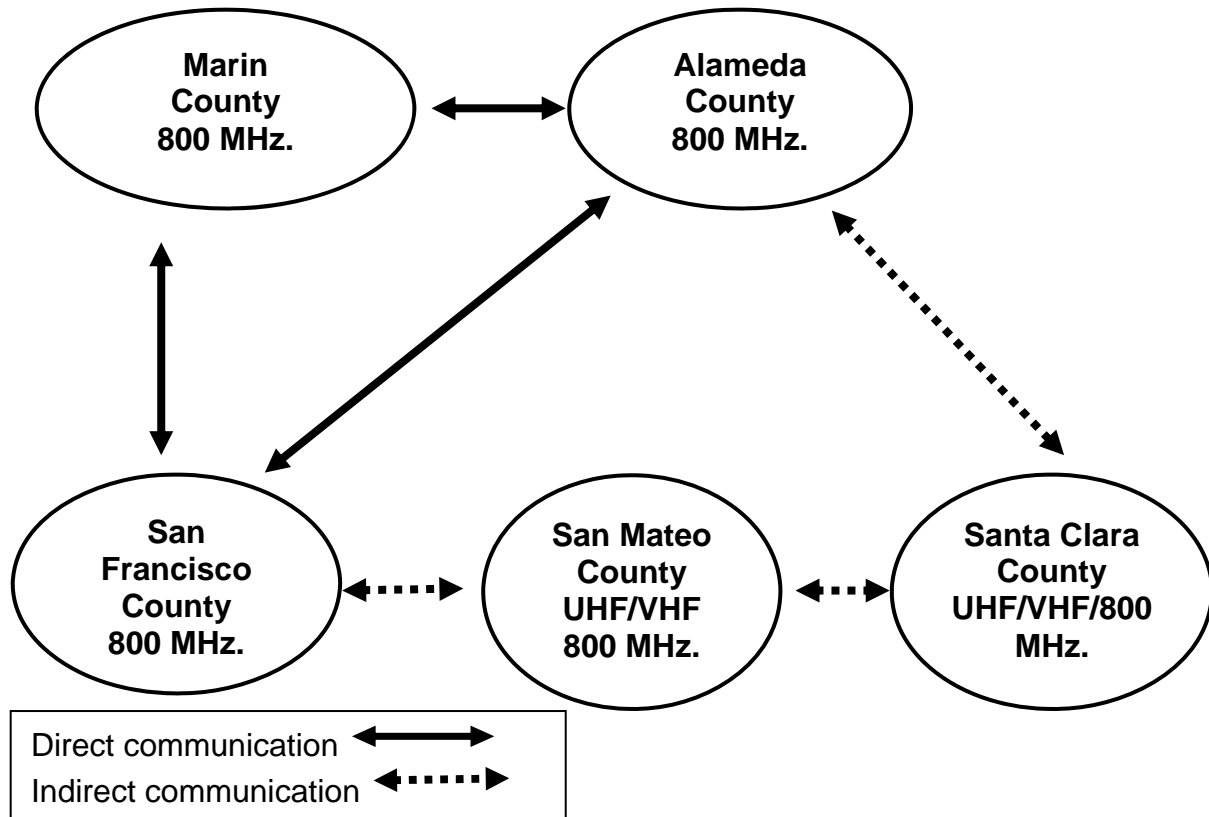


Figure 3. Interoperability Device (From Federal Communications Commission, 2010)

The hesitancy to move toward a more interoperable system includes the lack of perceived need. The examples listed earlier in this study were instances where the lack of communications capabilities were realized the most by the Sheriff's Office. It is the Sheriff's Office that is responsible for deploying mutual aid assets regionally and handling large critical incidents within the county. Therefore, the lack of capabilities in this area is not always fully appreciated by smaller cities. San Mateo County is located in an area susceptible to several types of natural disasters, including earthquakes, wild land fires, floods, and even tsunamis. Additionally, it is home to the San Francisco International Airport and major regional infrastructure sites associated with water, power, technology, communications, and transportation. The inability to communicate with significant partners such as San Francisco, Oakland, and San Jose is concerning. The chart below illustrates the county's current level of regional communication, or lack thereof.

Table 3. Current Bay Area Radio Configuration



The indirect communication indicated in the chart between San Mateo, San Francisco, and Santa Clara Counties only pertains to the San Mateo County Sheriff's Office. What is evident in this diagram is that San Mateo County is much less prepared to communicate regionally in a time of crisis than many of its neighboring counties.

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VI. ALTERNATIVES

A. APPLICATION OF ORGANIZATIONAL DESIGN PRINCIPLES

In his master's thesis, Battalion Chief Thomas Currao of the New York City Fire Department examines relationship factors including inter-organizational trust and leadership characteristics and their relationship to enhancing collaboration among emergency responders during critical incidents (2009, p. 1). Citing communication, planning, and logistics examples from New York City's emergency response capabilities, Currao (2009) claims that a lack of cooperation and collaboration is a systematic flaw among first responder agencies. Currao makes the additional claim that this flaw extends to exercises that cross agency and jurisdictional lines (2009). His view is that such exercises are a playing field for responding agencies to compete with one another rather than to build stronger relationships and a higher level of response (Currao, 2009). Currao identifies problems with planning, information sharing, and a failure to adopt a "task force mindset" as contributors to the problem of collaboration (2009, p. 2).

Currao's position is based on the assumption that collaboration among emergency responders contributes to a greater effectiveness (2009). He supports this need for collaboration by examining the theories and applications of complex adaptive systems (Currao, 2009, p.3). The environment Currao described is different from that in which emergency personnel regularly operate. Instead, complex adaptive systems present the emergency manager with distinct challenges and opportunities that require collaboration among agencies in order to realize success (2009). Currao supports participation among agencies in an interdependent network in response to a significant event, such as a terrorist attack. His belief is that such a network will result in collaborative solutions where emergency response agencies will be able to rely on one another to assist in reaching agency specific goals and objectives (Currao, 2009, p. 6).

Currao's main premise centers on the concept of trust and its role within collaboration (2009). The author's primary argument is that maintaining relationships based on trust is necessary in the response to threats to local, regional, state, and national security. To support this claim Currao presented the thesis' research question that asked: **"How does trust influence the development and implementation of inter-organizational collaboration involving those agencies that have a participatory role in homeland security preparedness, response, and recovery operations within New York City [emphasis added]"** (Currao, p. 8)?

From an organizational standpoint, Currao's research reveals a value to a collaborative intergovernmental approach as opposed to a traditional hierarchical model (2009). The research supports the collaborative approach's association with greater communication, innovation, the ability to shift resources quickly, and the flexibility to meet new demands (Currao, 2009, p. 13). Currao identifies trust as the foundation for a collaborative working environment where agencies allow themselves to rely on expertise and resources outside of their own control. His thesis also identifies the many aspects of homeland security, including intelligence based policing, fusion centers, and emergency management as being more heavily dependent on trust and collaboration than those in other fields. This is due to the inclusion of several different agencies and levels of government and there need to conduct consolidated operations and implement wide reaching policies effectively (Currao, p. 16).

Currao (2009) also applies trust and collaboration to the principles associated with leadership. This is completed by examining attributes associated with complexity leadership, adaptive leadership, and transformative leadership. The author arrives at the conclusion that leaders must possess and be able to use effectively skills such as persuasion, conflict management, crises management, and the ability to promote social networks among homeland security networks (Currao, 2009, p. 19).

A portion of the research methodology employed in developing the thesis was a series of interviews with representatives from five different agencies within New York City and a representative from a federal organization (Currao, 2009). The eight scripted questions for the interviewees included:

- What factors would you identify as fostering or diminishing the ability of agencies to coordinate operations and work within a collaborative fashion?
- Does the element of trust influence the development and implementation of inter-organizational collaboration and coordination?
- Now that you have identified trust as an element, how do you define trust within the emergency management process?
- How do you differentiate between trust in representatives of an agency versus the organization that they represent?
- In what ways do you feel that trust building between organizations may lead to increased effectiveness of response, problem solving, capacities, and the utilization of limited resources?
- How do you feel trust plays a part in modern day challenges, such as responding to or planning for acts of terror?
- What strategies, or programs, can be implemented to develop and foster trust between agencies?
- Is there a leadership role in establishing trusted relationships? Do those agencies that have as their mission the coordination of emergency services, play a role in the establishment of trusted partnerships? (Currao, 2009, p. 23)

Trust and collaboration were repeatedly identified by the respondents as necessary elements to an effective approach to security related issues. The interviewees expressed a desire to form stronger relationships with their emergency response partners. There was a strong consensus among all participants that trust and collaboration at every level is an essential component of emergency response.

As a result of the described research, Currao provides five recommendations to foster collaborative partnerships based on trust (2009).

These recommendations include:

- Multi-disciplinary training and education
- Realistic training / revised exercise program
- Enhanced communications
- Joint Operations Team
- Study limitations and future research. (Currao, 2009)

Currao concluded that the implementation of these recommendations would result in a greater understanding of agency cultures, reduced level of competition, greater level of information sharing, increase of effectiveness of applying expertise, and the elimination of isolated response and planning efforts (2009, pp. 92–98).

From an emergency manager's perspective, the assumptions and conclusions arrived at by the Currao (2009) are appropriate. One of the greatest challenges within emergency management is securing cooperation and collaboration among entities whose preference is to plan for, and respond to, incidents independently. Accordingly, the concept of trust plays a tremendous role in facilitating this collaborative process. The difficulty in New York City, with regard to interagency trust and collaboration, is not unique. These same challenges exist 3,000 miles away in Northern California. The concepts and ideas presented by Currao (2009) are shared by emergency managers and responders throughout the nation.

The intent of this research is to improve the quality of the organization at all levels. A review of other relevant organizations often offers interesting options. For example, an examination of the Caribbean Disaster Emergency Management Agency (CDEMA) provides insight into how San Mateo County's existing structure can be improved (CDEMA, 2011). The value of this comparison is that CDEMA and San Mateo County share a fairly similar footprint.

CDEMA is comprised of 16 Caribbean nations and is governed by an intergovernmental body granted authority by an intergovernmental agreement (CDEMA, 2011).

Each of the members of CDEMA is represented on its governing body (CDEMA, 2011). Furthermore, the purpose of CDEMA includes managing large-scale disasters, mobilizing resources, mitigation efforts, recovery, education, training, preparedness, and public awareness (CARICOM, 2011). From a geographical point of view, it may not be to scale; however, the structure and missions of both organizations make for an applicable and relevant comparison.

Similarities do not exist throughout the entirety of the two organizations. This is initially evident in the governing documents themselves. The county JPA fails to include valuable quasigovernmental or nongovernmental partners. Among the most valuable at the county level are special districts that are already charged with providing essential services on a regular basis. In contrast, the CDEMA agreement includes specific mention of similar organizations at the national and international level (CDEMA, 2011). This agreement addresses the inclusion of nongovernmental organizations within two specific areas. Initially, the agreement specifically identifies these organizations by separating them into six groups. These groups include Regional Response Organizations, Donor Agencies, Specialized Technical Agencies, National Disaster Organizations, Private Sector Organizations, and Other Resource Organizations (CDEMA, 2011). The specificity in identifying these groups assists to articulate clearly their respective roles within disaster response.

A second area where the CDEMA agreement addresses nongovernmental participation is an allowance of a more formal inclusion. This agreement affords its governing body the authority to enter into formal agreements with nongovernmental entities (CDEMA, 2011). This allowance enables CDEMA to include all partners formally within its response and management plans. Additionally, it also encourages collaboration and consistency among

government plans and those of partner agencies. At this point, no such latitude is granted to county's emergency services governing body under its existing agreement.

Structure is another component that separates the county from that of the CDEMA. While they share a very similar form of governance, the manner in which their response structures are established is different. CDEMA has taken its 16 jurisdictions and effectively created four regional groups. Four of the 16 members are selected based on location, size, and capability to serve as the head of these regional groups. In the case of CDEMA, the nations of Antigua, Barbados, Jamaica, and Trinidad and Tobago have been selected to lead their respective groups (CDEMA, 2011). This format helps to overcome the challenges mentioned earlier in this report associated within information management and resource distribution. Within San Mateo County, there are three large cities located at the north, central, and south regions of the county including Daly City, San Mateo, and Redwood City. The location, size, and robustness of these cities make them ideal candidates to assume the same role as those nations leading regional groups within the CDEMA structure.

The common characteristics shared by these two organizations make their respective footprints, although not to scale, extraordinary similar. This resemblance makes a comparative examination useful to San Mateo County for evaluating its existing structure and policies. An effective intergovernmental document, the inclusion of essential nongovernmental partners, and an established structure that provides for a consistent, efficient, and effective response are all areas in which CDEMA has progressed on an international level. Similar progress on a smaller level has slowed to a crawl in San Mateo County. Scale and scope is less relevant in this instance than identified needs, goals, and objectives. The consistency among these three factors within this comparison results in an ideal opportunity for San Mateo County to enhance its capabilities and capacity.

The California Emergency Management Agency (CalEMA) applies a similar approach to managing incident that affect the entire state or large regions within it. Rather than establishing one funnel to receive and distribute information from the state's 58 county operational areas, CalEMA has separated the state into seven regions (CalEMA, 2010). From a management perspective, this provides a solid communication structure that facilitates information and resource management. In essence the 58 county EOC's communicate with their respective Region EOCs (REOCs) who then communicate with the State Emergency Operations Center (SOC). San Mateo County may be well served in considering the application of the principles within the CDEMA and CalEMA models in managing their own critical incidents and information sharing efforts.

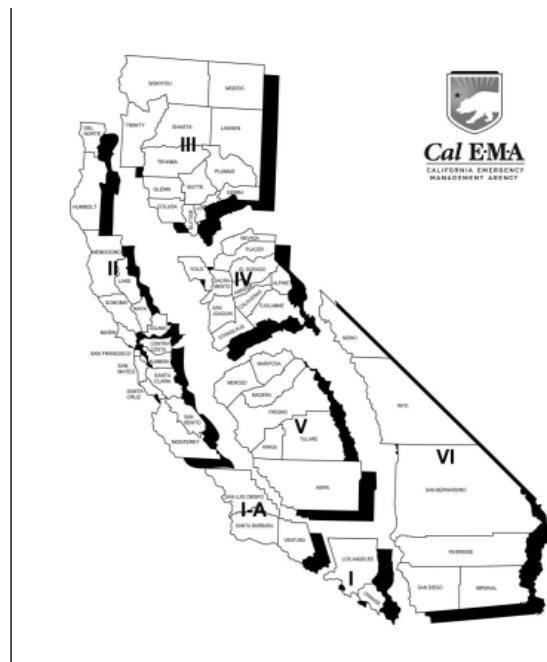


Figure 4. CalEMA Management Regions (From CalEMA, 2011)

An adoption of this type of model would not come without challenges. It would require a level of intergovernmental cooperation the county has not yet experienced. For example, during the course of a disaster or similar critical incident circumstances may call for an administrator from one jurisdiction making

policy or resource related decisions for a neighboring jurisdiction. There are significant political and fiscal ramifications associated with this; however, this challenge can be addressed through planning and continual conversation and exercise. Ideally, parameters would result that would prevent the inappropriate influence of on jurisdiction over another. Unforeseen variables will always exist that make complete preparation for operating in this type of environment impossible. An evaluation of this model simply depends on whether or not it is believed that the benefits outweigh the risks.

B. INCLUSIVE GOVERNANCE

The existing JPA has served the county well for a very long time. There are many areas of the agreement that are very useful and productive. However, as discussed above, the agreement's exclusion of relevant partners and its reluctance to evolve with changing needs and capabilities has diluted its effectiveness. A revision of the JPA is required and an evaluation the following policy options may facilitate a greater relevance and effectiveness.

1. Special Districts

a. Policy Option One

The Emergency Services Council shall maintain the status quo effectively excluding special districts from participating in the governance process (see Table 4).

Table 4. Special Districts Policy Option One

Option 1	Effectiveness	Fiscal Impact	Political Feasibility	Sustainability
Status Quo	Poor	Moderate	Moderate	Poor

The short-term result to option number one may go unnoticed as long as a large regional response is not required. However, failures to invest in

the process and organization will likely result in an inability to make the necessary advances to prevent, mitigate, and respond effectively in the long term.

b. Policy Option Two

The Emergency Services Council should direct OES to take the lead in establishing a countywide commission tasked with overseeing the county's special districts. This group should be granted legitimacy and authority via the JPA and be comprised of an OES District Coordinator, a representative of the Emergency Services Council, and one representative from each of the county's special districts. This group will ensure that the appropriate special district coordinates with applicable municipalities including the active participation within each city's EOC.

Table 5. Special Districts Policy Option Two

Option 2	Effectiveness	Fiscal Impact	Political Feasibility	Sustainability
Special District Commission	Moderate	Moderate	Moderate	Moderate

All measurable areas for Option Two are listed a moderate based on existing conditions. For example, it is very likely that this option will be effective, but it may not be as effective as special districts holding a voting seat on the council. This option can be viewed as an appropriate compromise increasing the fiscal impact and political feasibility from poor to moderate.

c. Policy Option Three

The JPA should be revised to mandate that OES takes the lead in building redundant communication links between special districts, municipalities,

and the county. Following this revision, OES should be charged with annual review of these redundant systems. The JPA budget must be adjusted to provide for adequate funding of this ongoing project.

Table 6. Special District Policy Option Three

Option 3	Effectiveness	Fiscal Impact	Political Feasibility	Sustainability
Communication Links with Special Districts	High	Poor	Poor	Moderate

The fiscal impact of this investment may prevent its implementation. Within the current environment, elected officials are likely to be unwilling to make an investment to build this type of system. This decision may be appropriate at this point, but should be considered when deemed more acceptable.

d. Policy Option Four

The JPA should be revised to include a special district advisory committee comprised of an OES District Coordinator and a representative from each of the special districts. While not a voting member of the council, the advisory committee should be included in the agenda of the council's quarterly meetings. The committee will have the authority to develop and present proposals to the Emergency Services Council. Furthermore, prior to the passage of policy, all proposals will be submitted to the advisory council for review and feedback.

Table 7. Special District Policy Option Four

Option 4	Effectiveness	Fiscal Impact	Political Feasibility	Sustainability
Special District Advisory Board	High	High	Moderate	High

There is no net cost associated with this option. It allows for the formal participation of special districts and results in a much more thorough and collaborative process. Political friction may exist when the agendas of different groups clash; however, this option presents a platform to address those issues with structure and process.

e. Policy Option Five

The JPA should be revised to include a special district representative as a voting member of the Emergency Services Council. This representative will be elected by all contributing special districts to sit on this board. Only those special districts contributing financially shall participate in selecting this member.

Table 8. Special District Policy Option Five

Option 5	Effectiveness	Fiscal Impact	Political Feasibility	Sustainability
Special District Voting Member	Poor	Poor	Poor	Moderate

Option Five will likely create another large level of bureaucracy and cause the Special District to face obstacles in participating as an effective member. It is unlikely that one representative can legitimately represent the interest of such a diverse group. Furthermore, those depending on the services provided by special district may find themselves contributing an inequitable amount under a revised agreement. For instance, one may contribute via the municipality one resides, and then through any special districts that provide services in that particular area.

f. Policy Option Six

The JPA should be revised to establish three to four hubs within the county to manage large-scale regional natural and manmade disasters better. This policy will require the cooperation of jurisdictions sharing borders and within close geographic proximity of one another. Special districts will be included in this process and be assigned to the appropriate hub based on the type of provided services and the geographic location that service is provided within the county.

Table 9. Special District Policy Option Six

Option 6	Effectiveness	Fiscal Impact	Political Feasibility	Sustainability
Hub Management Model	High	Moderate	Moderate	High

Option Six presents a model that is much more effective than the current system. This option may face difficult political and fiscal challenges during development and implementation. However, the long-term result will be a model in which funds and resources are managed and allocated in a much more efficient, effective, and risk based manner. Should this option receive the necessary commitment upon implementation, sustainability should not be a problem.

2. San Francisco International Airport

a. Policy Option One

The Emergency Services Council should invite SFO to join the JPA and include the facility as an associate member of the emergency services council.

Table 10. SFO Policy Option One

Option 1	Effectiveness	Fiscal Impact	Political Feasibility	Sustainability
SFO as an Associate Member	High	Moderate	Moderate	Moderate

This option is likely to enhance the county's level of preparedness and response capabilities significantly. Its financial impact is tied directly to political agendas. Assuming some type of consensus is reached, this step would improve the effectiveness of the JPA.

b. Policy Option Two

The Emergency Services Council should seek input on the Airport Commission (San Francisco Charter) regarding policies and decisions that will directly affect the county. This position should be identified and defined within the JPA.

Table 11. SFO Policy Option Two

Option 2	Effectiveness	Fiscal Impact	Political Feasibility	Sustainability
Council Access to Airport Commission	Poor	Moderate	Poor	Moderate

The likelihood of elected leaders in San Francisco to support a move like this is poor. Furthermore, due to the political climate it is unlikely that any input provided by the Emergency Services Council would carry any weight.

c. Policy Option Three

The council should seek a liaison relationship with the city and county of San Francisco Board of Supervisors (San Francisco Muni Code) regarding decisions related to the airport. This position should be defined and outlined within the existing JPA.

Table 12. SFO Policy Option Three

Option 3	Effectiveness	Fiscal Impact	Political Feasibility	Sustainability
Council Liaison with SF BOS	Poor	Moderate	Poor	Poor

This option faces the same challenges as Option Two. The atmosphere within San Francisco politics will not likely allow such inclusion.

3. Interoperable Communications

a. Policy Option One

Identify one member of the Emergency Services Council as the chair of the county's interoperable working group and require all JPA members to assign a member to the same.

Table 13. Interoperability Policy Option One

Option 1	Effectiveness	Fiscal Impact	Political Feasibility	Sustainability
ESC Member to Chair Inerop Working Group	Moderate	Moderate	Poor	Poor

This option would provide the council with a vested interest in interoperability. Additionally, it possesses the authority to mandate participation and compliance. It will be met with a great deal of push back politically; however, this process would provide the cities with a voice to express not only objections, but also to influence the direction of future communications systems.

b. Policy Option Two

Identify four members of the county's interoperable working group to be assigned to the UASI based regional working group. These assignments should be based on local within the county (i.e., north, central, and south) and one member from the Sheriff's Office.

Table 14. Interoperability Policy Option Two

Option 2	Effectiveness	Fiscal Impact	Political Feasibility	Sustainability
Members Assigned to Regional Working Group	Moderate	Moderate	Poor	Poor

This revision addresses two issues. It will provide the county with an active role in the development of the appropriate form of regional governance. Additionally, it will expose city representatives to associated successes in other parts of the Bay Area. This will likely, over time, dissipate any reservations associated with an interoperable system; however, it will experience the political struggles similar to that of Option Number One.

c. Policy Option Three

Establish a fund within the JPA budget to finance future interoperable projects.

Table 15. Interoperability Policy Option Three

Option 3	Effectiveness	Fiscal Impact	Political Feasibility	Sustainability
Interop Fund	High	Moderate	Poor	Moderate

The same type of financing was just completed for a new \$600,000 Hazardous Materials Response Truck. This document already provides for the funding of local mutual aid channels and is controlled by a representative from all

of the stakeholders within the county. This investment affords control to those who are most impacted by this effort. It contributes to enhanced local governance and subsidizes the associated costs for smaller municipalities.

d. Policy Option Four

Require the present law enforcement and fire mutual aid chiefs (assigned on a rotational basis) to provide regular communications updates to the council on a quarterly basis.

Table 16. Interoperability Policy Option Four

Option 4	Effectiveness	Fiscal Impact	Political Feasibility	Sustainability
Interop Reports from Chiefs	Moderate	Moderate	Moderate	Moderate

These chiefs already report out on mutual aid responses quarterly. The addition of this report would provide for accountability and measurable outcomes.

C. FISCAL CONSIDERATIONS

The total combined contributions of the cities to the Emergency Services JPA come to approximately two million dollars annually (OES Budget, 2009). OES manages approximately 26 million dollars in grant funds each year (OES Memorandum, 2008). In addition to their contributions to the JPA, many of the incorporated cities are spending considerable sums of money for services provided by special districts based on contractual relationships. SFO is a tremendous revenue generator for San Mateo County. Fees and taxes on fuel, licensing, and other goods and services have long been a matter of contention between the county and the city of San Francisco.

The factors described above make fiscal concerns the major obstacle standing in the way of a revised JPA that would include special districts and SFO as active members. There are two components to this obstacle.

The first hurdle addresses whether these entities should be required to contribute financially as part of the JPA. Many cities have argued that special districts should contribute if they want to participate fully; however, this process may not be equitable for residents who already pay for and rely on the services these districts. For example, if a city contracts with a fire district to provide fire protection services and both the municipality and fire district are contributing members to the JPA, then taxpayers in that city are contributing twice the amount of those who reside in cities that provide their own services. Additionally, it is likely that municipalities will not grant special districts voting privileges. Although districts would be eager to play a greater role, they would not be willing to enter into an agreement that calls for their financial support without adequate representation. In the case of SFO, an argument can be made that its ongoing support within the county in the form of taxes and fees should grant it inclusion with no additional requirement for support.

Should an agreement be reached where special districts would be willing to contribute financially to the JPA, specific guidelines must be developed within the agreement outlining this process. This presents the second component of the fiscally based obstacle with regards to how these guidelines should be established. There are many variables that may be considered including the size of the district, the type of service it provides, and its total contract amount with municipalities. Inevitably, those districts required to make greater contributions will argue for a larger role within the process. This will draw objections from the smaller more vulnerable districts. Additionally, these decisions have a direct impact on the residents as contract costs will increase in proportion to contributions to the JPA.

The incentive to include the special districts as active members of the JPA can only be overcome if the municipalities acknowledge their value to the process. However, there is no equitable and efficient manner to develop a contribution schedule for these districts. Therefore, the current formula used to determine city's contribution should be could include a small fee for the formation of the advisory committee described within this report. In addition to population and property values, whether or not a city depends on a special district for services should be included as a variable. This new formula could be mandated within a revised version of the JPA.

Among local government the most intimidating factor in exploring interoperability is the involved costs. The concept of enhancing communication capabilities is often discarded at the city and town levels based simply on the bottom line. This is discouraging because it prevents even the discussion of what types of enhanced services are available. Additionally, the conversation regarding alternative funding sources is never entertained. For example, the Bay Area Urban Area Security Initiative (UASI) has been active in promoting the federal effort to establish a public safety broadband network (Bay Area UASI, 2009c). Although there are difficult political considerations present that, this Bay Area effort is accompanied with significant federal funding. The most recent opportunity is a 72.4 million dollar Broadband Technology Opportunity Program (Bay Area UASI, 2010c). This project is aimed at supporting public safety applications during critical incidents and providing broadband connectivity for public access to underserved areas of the county as well as special districts and community colleges (Bay Area UASI, 2010c). While the county is active in this program, the cities have shown no interest. This is just one example of the dichotomy that exists among the priorities and direction of the cities and county.

Via the Emergency Services JPA, the cities and county invested a total of \$402,012 in 2009/2010 to maintain the existing four analog law enforcement mutual aid channels (OES Budget, 2009). This cost is in addition to the

individual cost of each entity to maintain its own communications channels. As is the pattern within the county, each city continues to act independently of one another and the county. With the recent economic difficulties experienced by many cities, the concept of shared services has become fairly popular. Among these discussions are proposals to consolidate 911 communication centers. While these efforts may be fiscally prudent, they are not accompanied by a move toward a coordinated maintenance of frequencies. This type of coordination would likely lead toward future interoperability considerations.

There is an acceptance among the cities within the county that future communication needs and requirements will require a move to a digital system; however, this acceptance is accompanied by a belief that this type of transition will be much more affordable in the future as technology continues to evolve. Although there is no guarantee, this belief may be true. It has resulted in a “wait and see” strategy among the municipalities. Unfortunately, these are multiple strategies as each entity prepares for the future independently. The strategy has blinded local governments to the fact that they have fallen behind most of the region in their level of preparedness. If their hypothesis is not found to be accurate, there will be a heavy price to pay down the road. More importantly, there is no way to forecast when this capability will be needed to save lives and protect key resources.

Similar obstacles accompany restructuring the county into three or four response hubs. This step is accompanied by the possibility that officials from one jurisdiction may be placed in a position that requires policy decisions in a neighboring city. This policy consideration also includes a financial impact. For these policy decisions, especially when allocating resources, will result in significant costs. Furthermore, the reimbursement under state and federal guidelines will be subject to great debate as the process for ordering and allocating resources is reviewed and scrutinized.

This obstacle may be overcome on two fronts. First, the county already employs very effective mutual aid and automatic aid systems. The effectiveness of these systems is based, in large part, on the establishment of a unified command consistent with the Incident Command System (ICS) principles (FEMA, 2011). A revision of the existing agreement to include a unified command within regional operations centers would alleviate many of the concerns associated with municipal autonomy and finances. The second approach to deflecting resistance to a more coordinated response is the shared services approach. Within these types of responses, municipal assets become regional assets. This is not only cost effective, but it also allows cities to compile and stage resources collaboratively with a sense of purpose. It is often difficult to predict what the need will be and where assets will be needed. Instead of cities fending for themselves, they can work with neighboring jurisdictions to secure resources that are lacking regionally. Additionally, these resources can be staged in a manner that makes their allocation and deployment much more effective and efficient.

The financial structure of CDEMA does provide support for those smaller nations within the organization who may lack the resources of their neighbors in the region. On the other hand, the existing county agreement punishes smaller cities in a sense. Many smaller cities within the county have moderate populations and very high property values resulting in a significant required contribution to the JPA; however, some of these same municipalities are primarily bedroom communities that have no commercial tax base. The end result is that the financial burden experienced by the cities is not truly proportionate. The inclusion of special districts as members within the formal emergency response process could very well help to address this funding dilemma.

D. TRANSITION AND PLAN TO EFFECT CHANGE

Implementation of the aforementioned policy options requires a two-pronged approach. Some of the proposed JPA revisions require the

establishment of subcommittees within the Emergency Services Council. Representatives should be chosen by size and region to ensure adequate representation of all stakeholders. Subcommittees should also include nongovernmental partners as associate or advisory members. The findings of these bodies should be brought back to the Emergency Services Council for review and adoption.

The proposed adjustment to the existing response structure should be evaluated by a working group comprised of emergency managers from each of the municipalities within the county. This group already exists and meets quarterly to address regular smaller issues. This group should be tasked with developing a footprint for how this structure should be adjusted. The findings of this group should be submitted to CalEMA and FEMA to ensure compliance with SEMS and NIMS. Upon approval from these agencies, this proposal should be presented to the Emergency Services Council for review and adoption.

Along with fiscal factors, the diverse psychological make-up of the agreement and organization contribute to the adoption and implementation challenge. Contributing to this atmosphere is the “resource crunch” discussed by Moghaddam in *The New Global Insecurity* (2010). Significant inequalities exist among the participating municipalities and the special districts. As a result, access to resources is extremely inconsistent. The county finds itself with a regionalization dilemma that is similar to the globalization paradox presented by Moghaddam (2010, p. 80). As the economies of municipalities grow and decline, resources continue to be consumed at an increasing rate leaving those with less facing an apparent continual spiral downward. In contrast, those entities that enjoy a greater access develop a false sense of security and a reluctance to adapt to a changing environment. The tendency to take care of immediate needs within strict boundaries ignores an inherent interdependency across jurisdictional

lines. This failure is due to a lack of acknowledgement that security is based on regionalism and that incidents that occur in one area have a cascading effect on surrounding environments.

Special districts are faced with particularly difficult dilemmas with regard to the concept of needs. Necessities, such as support, linkages, and information (Clizbe, 2007, pp. 196–197), are not included in the equation when special districts are called upon in times of crises. Their abilities to assess, coordinate, share information, and manage risk (Clizbe, 2007, pp. 198–199) are directly dependent on their relationships with local and regional governance. To this point, these relationships are informal and tenuous. The lack of strong relationships is based on a belief system among local entities that they must “take care of their own,” and any attempt to collaborate results in a relinquishing of control and an elevated risk. This mentality prevents the community’s ability to respond to, and adequately recover from, both natural and manmade disasters.

The basis for the reluctance described above bears a strong relationship to the concept of catastrophic evolution within intergroup contact (Moghaddam, 2008, p. 96). The idea of pre-adaptiveness is the first component of this struggle (Moghaddam, 2008, p. 96). In this case, entities must develop a process that allows for a level of preparedness that includes collaboration with neighboring jurisdictions and nongovernmental organizations. They must recognize the benefits of the ability to evolve in conjunction with an ever-changing environment. The evolutionary process will be heavily influenced, if not dictated, by the environments within adjacent communities. The second component is an evaluation of the speed of post contact adaptation (Moghaddam, 2008, p. 96). The rate at which a community will be able to adapt to the inclusion of another is entirely dependent on its preconditioned preparedness to do so. Therefore, unless the municipalities and special districts are working collaboratively to prepare, the expectation of a cooperative response and recovery post incident will be extremely low.

From a practical perspective, the county must examine how it can overcome its own psychology of governance. The inclusion of special districts provides for the opportunity to contribute to the county's emergency planning process. Their inclusion will advance the county's preparedness due to a greater access to resources and the opportunity to collaborate with entities that possess an expertise and knowledge base that is not found in traditional county and municipal departments. However, there is a "chicken and egg" dilemma here in addressing the psychology and belief system of all involved parties. In order to move toward inclusiveness, a change in mentality must occur that includes a recognition and acceptance of the concept of regionalism. The document and governance structure simply provides an avenue for legitimizing and legislating this new thought process.

During emergency situations and critical incidents existing questions and ambiguities will be eliminated with a more structured process. This approach will also decrease the level of competition for resources during a time of need. Furthermore, all entities will be better equipped to make emergency management decisions as all opinions and interests are addressed.

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VII. CONCLUSIONS AND RECOMMENDATIONS

The San Mateo County Emergency JPA continues to support the preparedness needs of the county. However, the evolution of the manner in which public safety and additional core services are provided has made the JPA less relevant. The shortcomings of the agreement must be recognized acted upon by the Emergency Services Council. Among these concerns are interoperable communications, the inclusion of the many special districts within the county, and building a stronger relationship with the San Francisco International Airport. A move to address these issues will face political challenges and financial obstacles. The ultimate goal is to provide for the safety and security for the county's residents. The Emergency Services JPA can be an effective mechanism to work toward resolving these important issues. The agreement is not perfect and in its current state is relatively ineffective. A revision of this agreement incorporating the implementation of organizational design principles will significantly increase its effectiveness.

The interoperable issue is a challenging one. This study identified just three areas of concern that contribute to the complexity of this problem. The tendency is to address each level of the interoperable dilemma as a separate component requiring a unique and intricate solution. It is likely true that each of the aforementioned areas must be approached with precise and specific solution alternatives; however, the larger picture must not be ignored. To do so, simply adds to the topic's complexity. In San Mateo County there is an avenue available to address each of the three contributors discussed in this study. The Emergency Services JPA can be an effective mechanism to work toward solving the county's interoperable problem. The following revisions to this agreement would make it the interactive and dynamic tool necessary to increase the county's level of preparedness.

Table 17. Interoperable Communications Policy Options

Option	Option	Effectiveness	Fiscal Impact	Political Feasibility	Sustainability
1	ESC Member to Chair Inerop Working Group	Moderate	Moderate	Poor	Poor
2	Members Assigned to Regional Working Group	Moderate	Moderate	Poor	Poor
3	Interop Fund	High	Moderate	Poor	Moderate
4	Interop Reports from Chiefs	Moderate	Moderate	Moderate	Moderate

A qualitative analysis of the data with regard to the county's interoperable communications reveals a couple of viable options. The establish of a interoperability fund will contribute to cities be isolated in the future when addressing costly and immediate communication needs. Monitoring the county's progress via law and fire executives strengthen the sustainability and provide a foundation for a more active approach in the future.

The date regarding the inclusion of special districts provides similar guidance.

Table 18. Special Districts Policy Options

Option	Option	Effectiveness	Fiscal Impact	Political Feasibility	Sustainability
1	Status Quo	Poor	Moderate	Moderate	Poor
2	Special District Commission	Moderate	Moderate	Moderate	Moderate

Option	Option	Effectiveness	Fiscal Impact	Political Feasibility	Sustainability
3	Communication Links with Special Districts	High	Poor	Poor	Moderate
4	Special District Advisory Board	High	High	Moderate	High
5	Special District Voting Member	Poor	Poor	Poor	Moderate
6	Hub Management Model	High	Moderate	Moderate	High

This data suggests that the county JPA should formally recognize the position of special districts and other nongovernmental organizations within emergency management in the capacity of a special commission. Furthermore, the agreement should clearly and accurately define the roles of these entities and their partnerships with local governments and public safety agencies throughout the county. As established by the CDEMA, the county should establish a regional approach to disaster management identified as three to four hubs. These hubs should be headquarters geographically in the county's largest cities and include applicable special districts and nongovernmental organizations.

SFO presents a more unique challenge than other special districts with less available options.

Table 19. San Francisco International Airport Policy Options

Option	Option	Effectiveness	Fiscal Impact	Political Feasibility	Sustainability
1	SFO as an Associate Member	High	Moderate	Moderate	Moderate

Option	Option	Effectiveness	Fiscal Impact	Political Feasibility	Sustainability
2	Council Access to Airport Commission	Poor	Moderate	Poor	Moderate
3	Council Liaison with SF BOS	Poor	Moderate	Poor	Poor

Due to its size, impact on the county, and affiliation with a major metropolitan city, the airport should be sought as an active homeland security and disaster response partner. The Emergency Services Council should invite SFO to join the JPA and include the facility as an associate member of the emergency services council. This is the only viable option at this point. It would be unrealistic to seek input on the Airport Commission (SF Charter) or the San Francisco Board of Supervisors (SF Muni Code); however, an emphasis should be placed on data sharing, intelligence, policy development, and decisions that will directly affect the county.

Clearly defining the county's relationship with SFO will improve both entities' level of preparedness and security. During emergency situations and critical incidents existing questions and ambiguities will be eliminated with a more structured process. A daily benefit to both parties will be a structured manner in which information can be collected, shared, and analyzed amongst both entities. This approach will also decrease the likelihood that the county will be forced to compete with San Francisco for resources during a time of need. Furthermore, both entities will be better equipped to make homeland security and emergency management decisions as all opinions and interests are addressed.

It can be inferred that the JPA has the confidence of the cities within the county. If it did not, it would not have survived for so long. It serves as a funding source to alleviate existing countywide costs. Finally, it provides for a solid platform from which an effective form of governance can be established for the

county's emergency services and homeland security needs. A review of this agreement provides the opportunity for the county to expand its communications capabilities and enhance the preparedness of its first responder agencies.

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APPENDIX A. SAN MATEO COUNTY EMERGENCY SERVICES JPA MEMBERS

San Mateo County
Atherton
Belmont
Brisbane
Burlingame
Colma
Daly City
East Palo Alto
Foster City
Half Moon Bay
Hillsborough
Menlo Park
Millbrae
Pacifica
Portola Valley
Redwood City
San Bruno
San Carlos
San Mateo
South San Francisco
Woodside

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APPENDIX B. SPECIAL DISTRICTS IN SAN MATEO COUNTY

Bay Area Water Supply and Conservation Agency

Bayshore Sanitary District (San Mateo)

Belmont-San Carlos Fire Department

Broadmoor Police Protection District

Coastside County Water District

Coastside Fire Protection District

Colma Fire Protection District

East Palo Alto Sanitary District (San Mateo)

Granada Sanitary District (San Mateo)

Los Trancos County Water District

Menlo Park Fire Protection District

Mid-Peninsula Water District

Montara Sanitary District (San Mateo)

North Coast County Water District

Peninsula Water Agency

San Francisquito Creek Joint Powers Authority

San Mateo County Resource Conservation District

San Mateo County Transit District

Sequoia Healthcare District

Sewer Authority Mid-Coastside

South Bayside System Authority

West Bay Sanitary District (San Mateo)

Westborough County Water District

Woodside Fire Protection District

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APPENDIX C. KEY RESOURCE AND CRITICAL INFRASTRUCTURE AREAS USED IN DETERMINING RISK

Agriculture and food
Banking and finance
Chemical
Commercial facilities (lodging and resort)
Commercial (public assembly)
Commercial (retail and real estate facilities)
Critical manufacturing
Dams, defense industrial base
Emergency services
Electricity
Oil
Natural gas
Military bases
Government facilities
Information technology
Monuments and icons
Nuclear
Postal and shipping
Public health
Telecommunications
Aviation
Maritime
Rail systems/mass transit
Road systems
Water

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